



Figure 76. Site 23464 Sink Area; View Southeast

6.0 m wide by 2.0 m high. Most of the floor is covered with boulder-sized ceiling collapse. No cultural material was observed in the western chamber possibly because potential materials are not visible beneath the ceiling collapse.

Site 23464 Testing Results

A single test unit (TU1) was excavated over the ash-charcoal concentration (designated SF1) in the western chamber of Site 23464 (Figure 77). The 0.5 m by 0.5 m unit was excavated to bedrock at a maximum depth of 4 cmbs. No stratigraphic profile was drawn because of the shallow depth of the excavation. SF1 encompassed the entire excavation and is described as follows:

SF 1 (4 cm thick) light gray (7.5 YR 7/1) ash; structureless; loose, non-coherent, non-sticky, non-plastic; few rootlets; cultural material present.

SF1 yielded 22.2 gms of charcoal and scant bird bone, including 0.8 gm medium bird, 0.5 gm Hawaiian Petrel (*Pterodroma phaeopygia*), 0.1 gm medium procellariid (probably also Hawaiian Petrel), and 0.1 gm Short-eared owl (*Asio flammeus*). The petrel limb bones exhibit end breakage possibly indicating the bird was butchered with a sharp implement, such as a basalt or volcanic glass flake (Ziegler 2003).

Discussion

The charcoal and ash deposit (SF1) likely represents a hearth of limited or one-time use. The scant remains of bird bones – primarily from Hawaiian Petrels – indicates seabirds were being possibly butchered, cooked and consumed at the site. No radiocarbon dates were obtained during the study, but given the lack of non-traditional or Western items, the site was likely occupied during the pre-Contact and/or early post-Contact period.

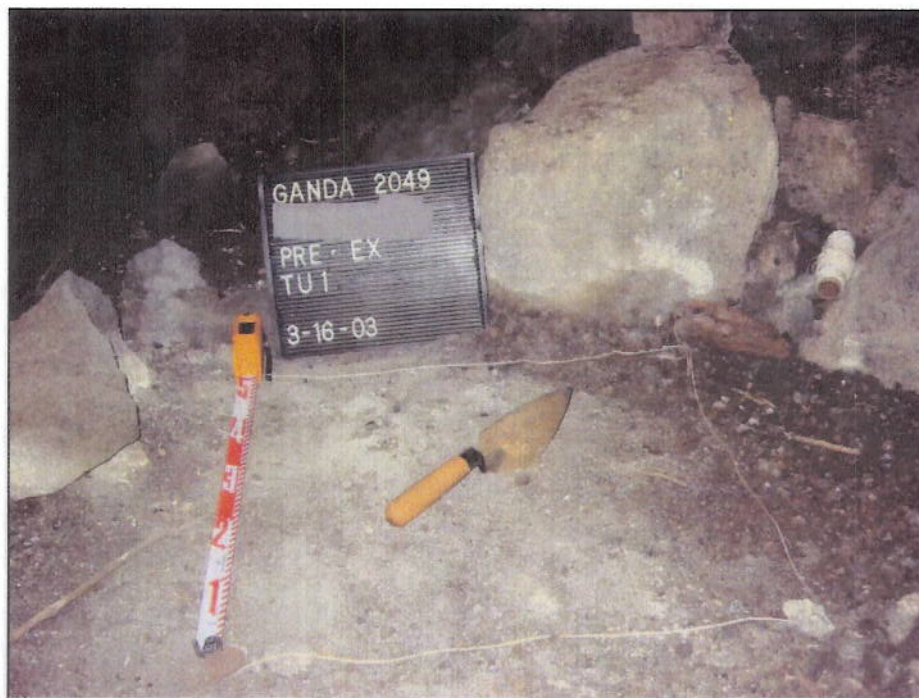


Figure 77. Site 23464, Charcoal-Ash Surface of TU1

Site 50-10-31-23465		GANDA Site:	691
Site Type:	Lithic Scatter/modified outcrop	Training Area:	Impact
Function:	Lithic quarry and workshop		
Possible age:	Pre-Contact (postdates age of lava flow – 330 years B.P.)		
No. of Features:	2		
Site Size:	58 m x 23 m (0.01 hectare)		
Cultural Material:	Adze perform, volcanic glass and basalt flakes, cores, possible pestle		
Condition:	Fair; live-fire impact		
Historic Context:	Resource procurement in Saddle (Pre-Contact)		
Significance:	D: <i>Information potential</i> ; site yields important scientific data regarding quarry methods specific to the k4 flow in the Saddle Region.		
Recommendation:	Avoidance and protection during all SBCT-related projects.		

Description: Site 23465 consists of a lithic workshop (Feature 1) and fine-grained basalt quarry (Feature 2) located roughly 1,200 m west of Redleg Trail (Figures 78-81). The lithic reduction area is located on a weathered *pāhoehoe* flow (k1o flow) formed 5,000 to 10,000 years ago. The quarry (Feature 2) occurs on boulders at the outer edge and base of a dominant *a'ā* flow (k4 flow) created around 330 years ago. Because most of the material present in the lithic reduction area appears to have come from the quarried boulders, the site likely post-dates the more recent k4 flow. No artifacts were collected from the site.

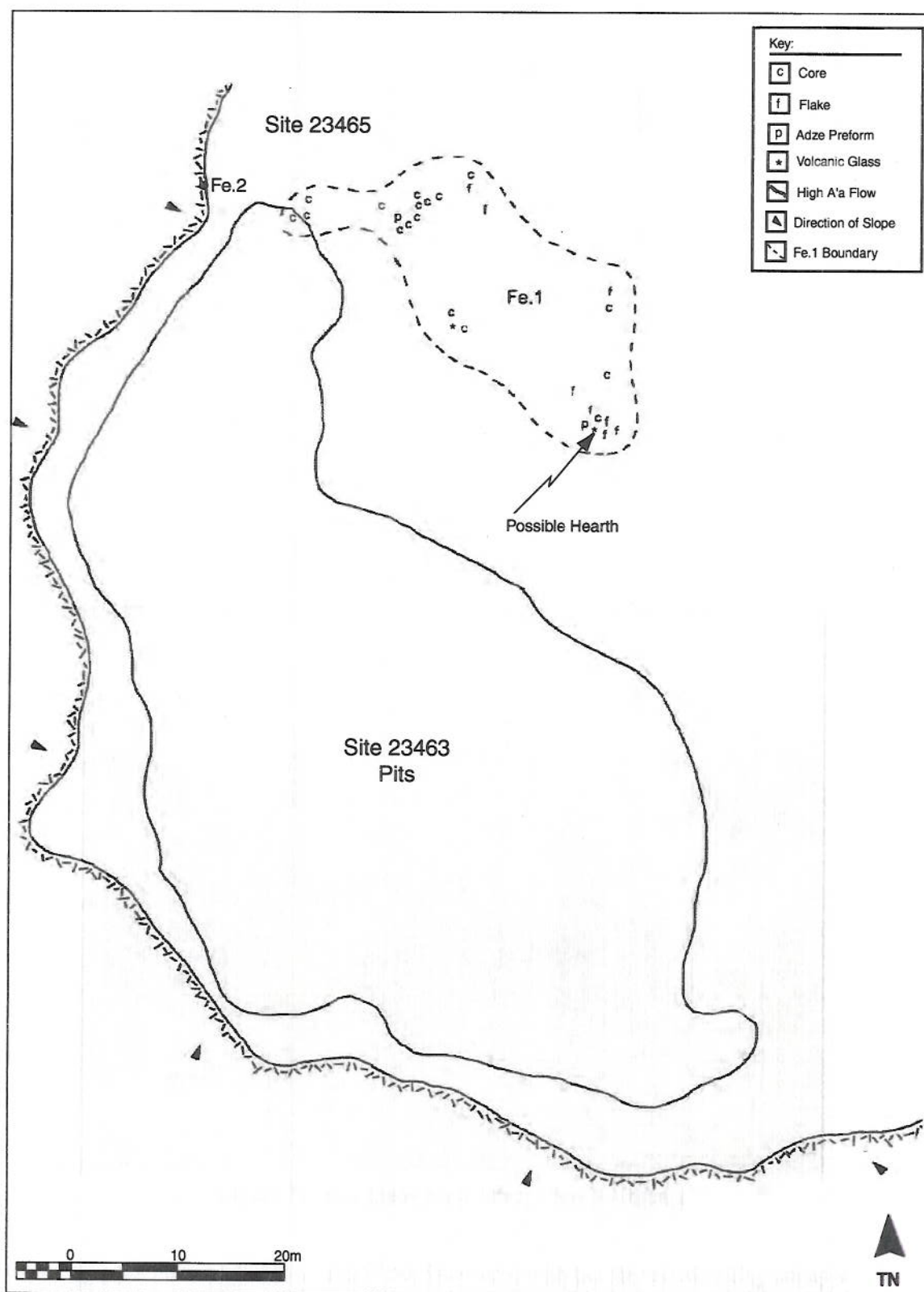


Figure 78. Site 23465, Features 1 and 2, and Site 23463 Pit Concentration; Plan View.

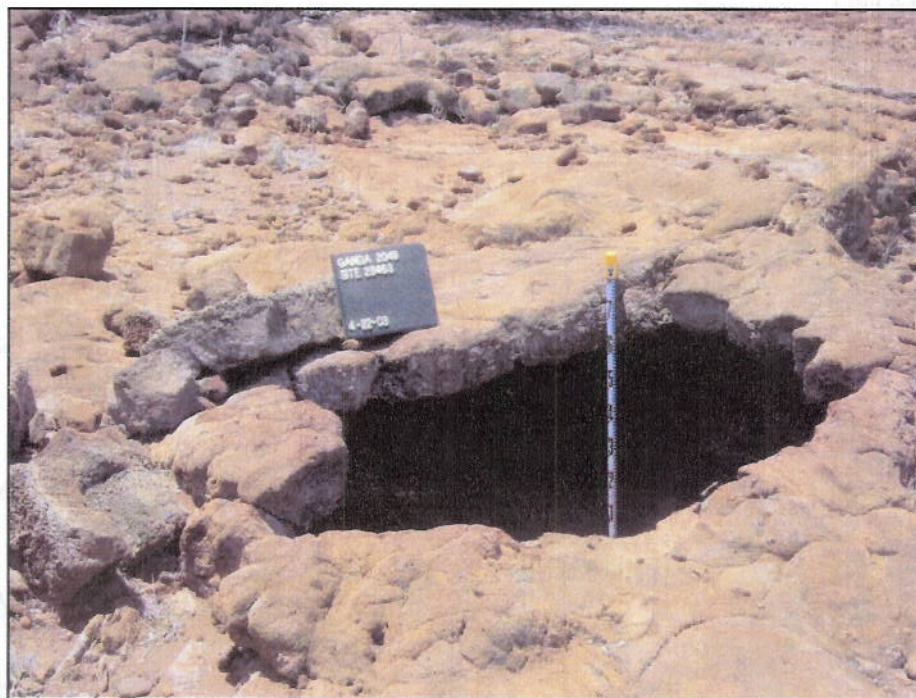


Figure 79. Example of Site 23463 Pit Feature in Vicinity of Site 23465



Figure 80. Site 23465; Overview of Feature 1 Area, Showing k4 a'ā Flow in Background

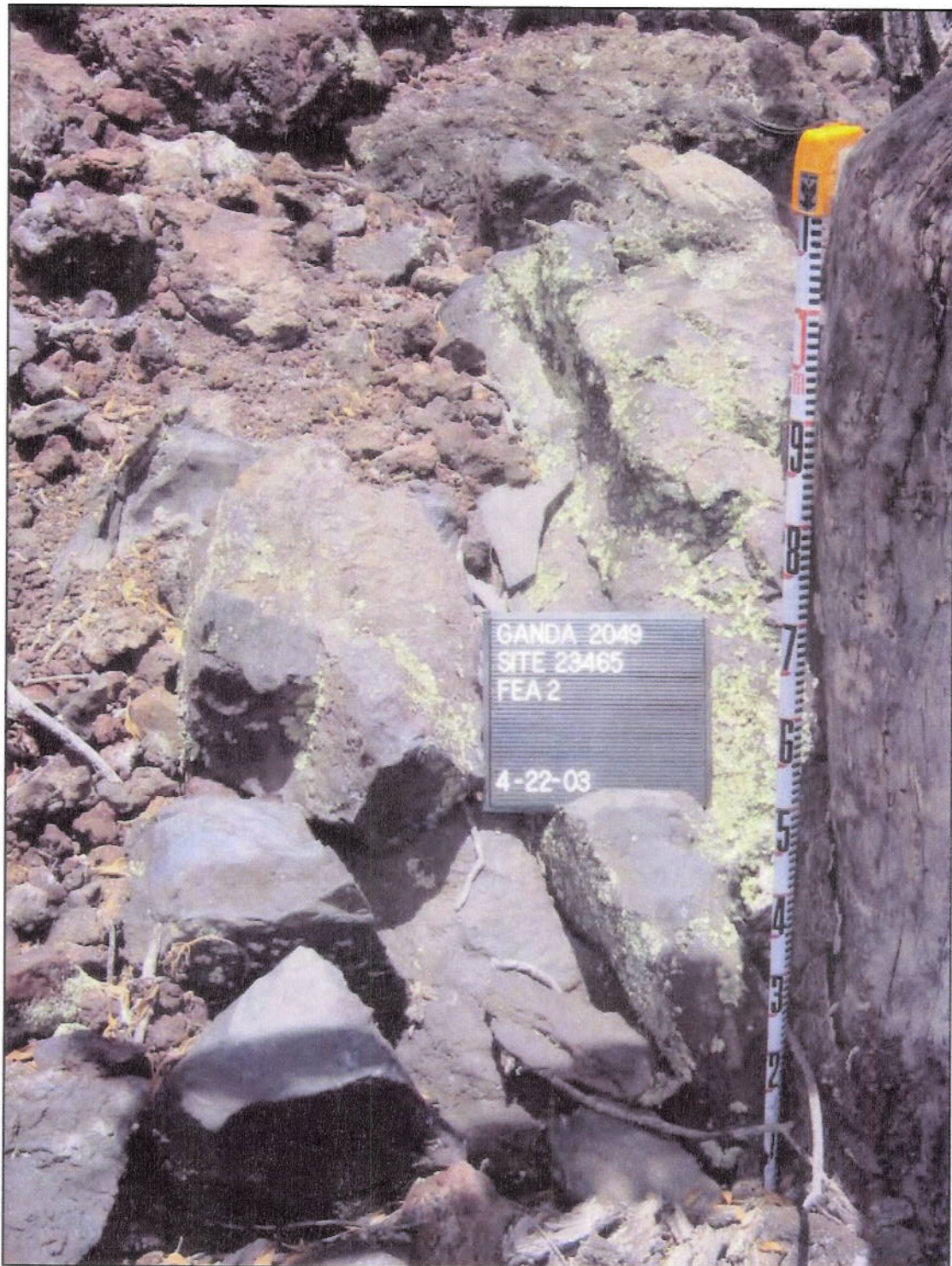


Figure 81. Site 23465, Feature 2, Example of Quarried Boulder

A concentration of excavated *pāhoehoe* pits associated with a larger complex of similar features (Site 23464), is also located at the interface of the two lava flows immediately south and west of the site. At least 20 individual pits of varying sizes were observed near the site.

Feature 1 workshop is bounded to the south and west by the dominant *a'ā* flow. The observed Lithics consist of 19 basalt cores, 12 basalt flakes, one adze perform, two volcanic glass nodules or cores and a possible pestle. The pestle is composed of vesicular basalt and appears ground on one end. A possible hearth, defined by an ash concentration and potentially burned bone, was observed near the southeast edge of the lithic scatter.

Feature 2 is composed of at least three quarried, fine-grained basalt boulders identified within and at the base of the *a'ā* flow west of Feature 1. The material appears to be extracted from the boulders in larger blocks and reduced to cores identified at Feature 1. The fine-grained basalt present in these boulders might represent fragments of a denser flow interior of the *a'ā* flow (MacDonald *et al.* 1970: 28). The k4 flow also comprises a *pāhoehoe* lava flow that was quarried for volcanic glass (e.g., Sites 23458 and 21667-21671 in project area).

Site 50-10-31-23622		GANDA Site:	671
Site Type:	Excavated pit complex	Training Area:	Impact
Function:	Possible bird nesting		
Possible age:	Pre-Contact		
No. of Features:	100+		
Site Size:	Approximately 300 m x 100 m (0.2 hectare)		
Cultural Material:	none observed		
Condition:	Fair		
Significance:	D: Information potential; site yields important information regarding location, methods and frequency of possible bird hunting in Saddle.		
Historic Context:	Resource Procurement in Saddle (Pre-Contact)		
Recommendation:	Avoidance and protection during all SBCT-related projects.		

Description: Site 23622 is a series of over 100 excavated pits in a weathered *pāhoehoe* flow (k1o flow) formed 5,000 to 10,000 years ago. The complex is concentrated in the southeast corner of the AALFTR, roughly 450 m east of Redleg Trail (Figure 82). The pits are subsumed under a single site number given their location on the k2 flow and clustered location in the southeast corner of the AALFTR.

The pit features are tentatively classified as excavated pits created by pre-Contact Hawaiians possibly to expand nesting areas of the Hawaiian petrel or *ua'u* and to access the bird nests in otherwise unreachable caverns in the lava (cf. Hu *et al.* 2001; Moniz-Nakamura 1998).

During the Phase II work, representative illustrations were completed for seven individual pits in three areas: designated Features A - C (Figures 83-85).

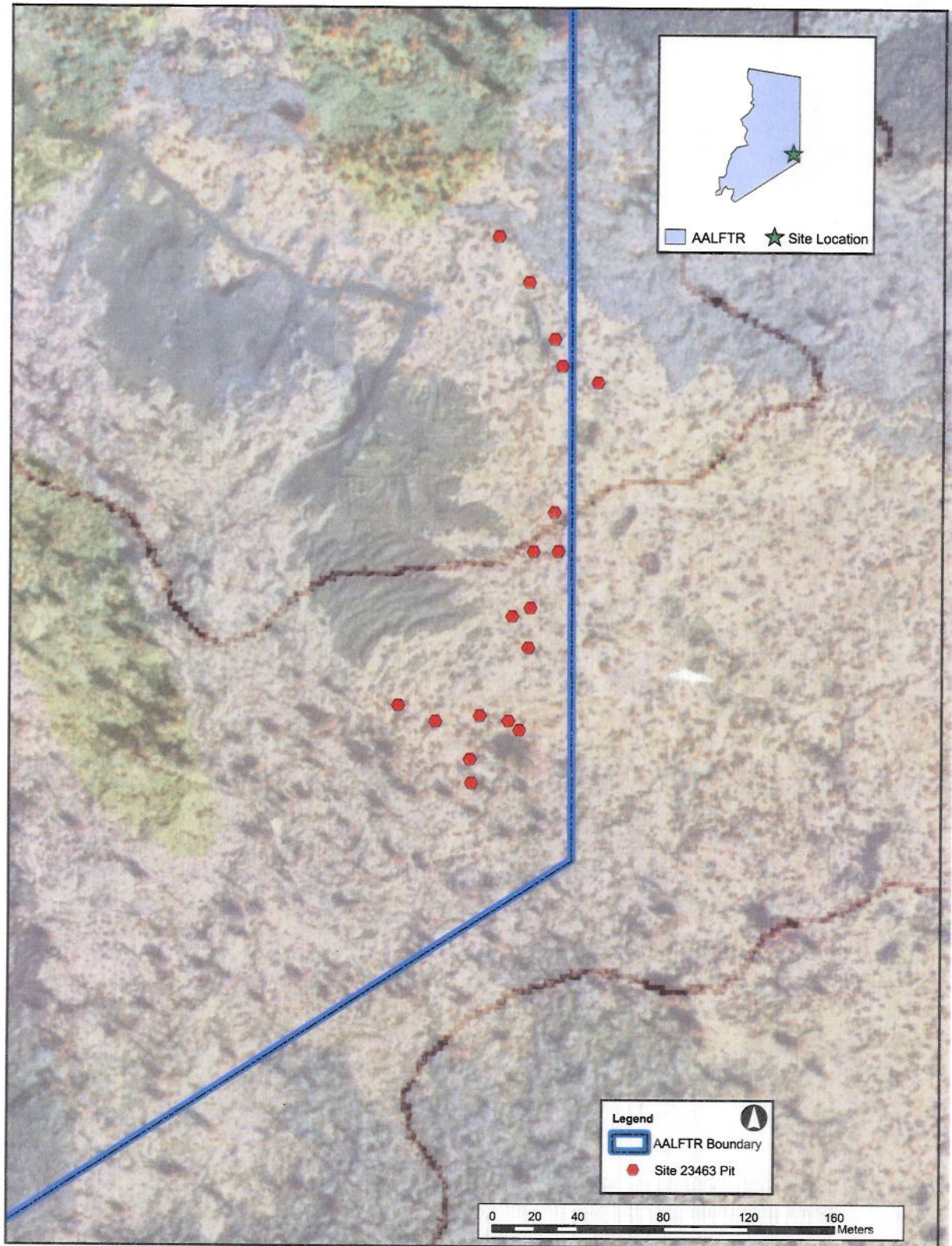


Figure 82. Site 23622; Distribution of Excavated Pits on Orthophoto and USGS Quadrangle

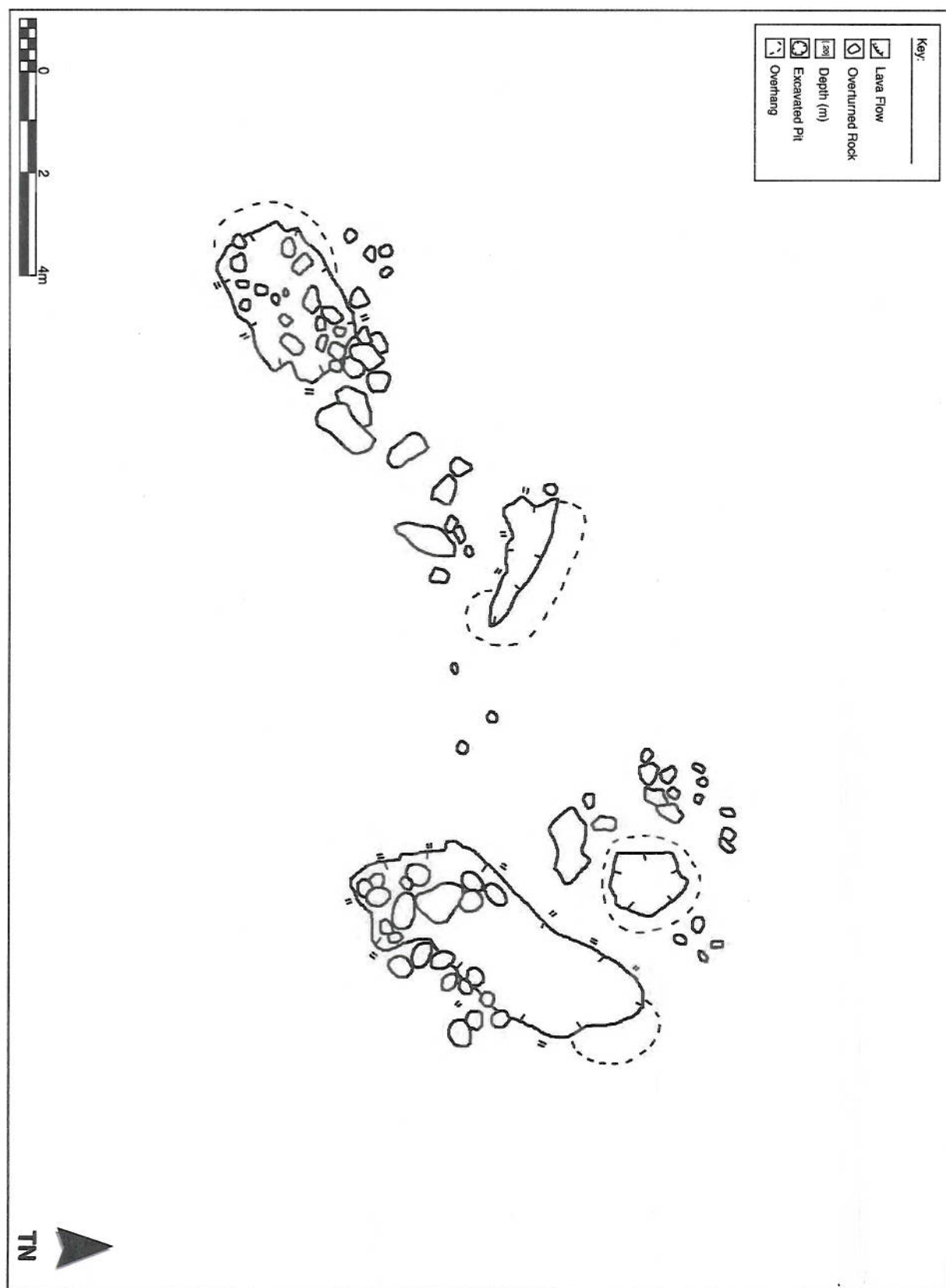


Figure 83. Site 23622, Area A; Plan View

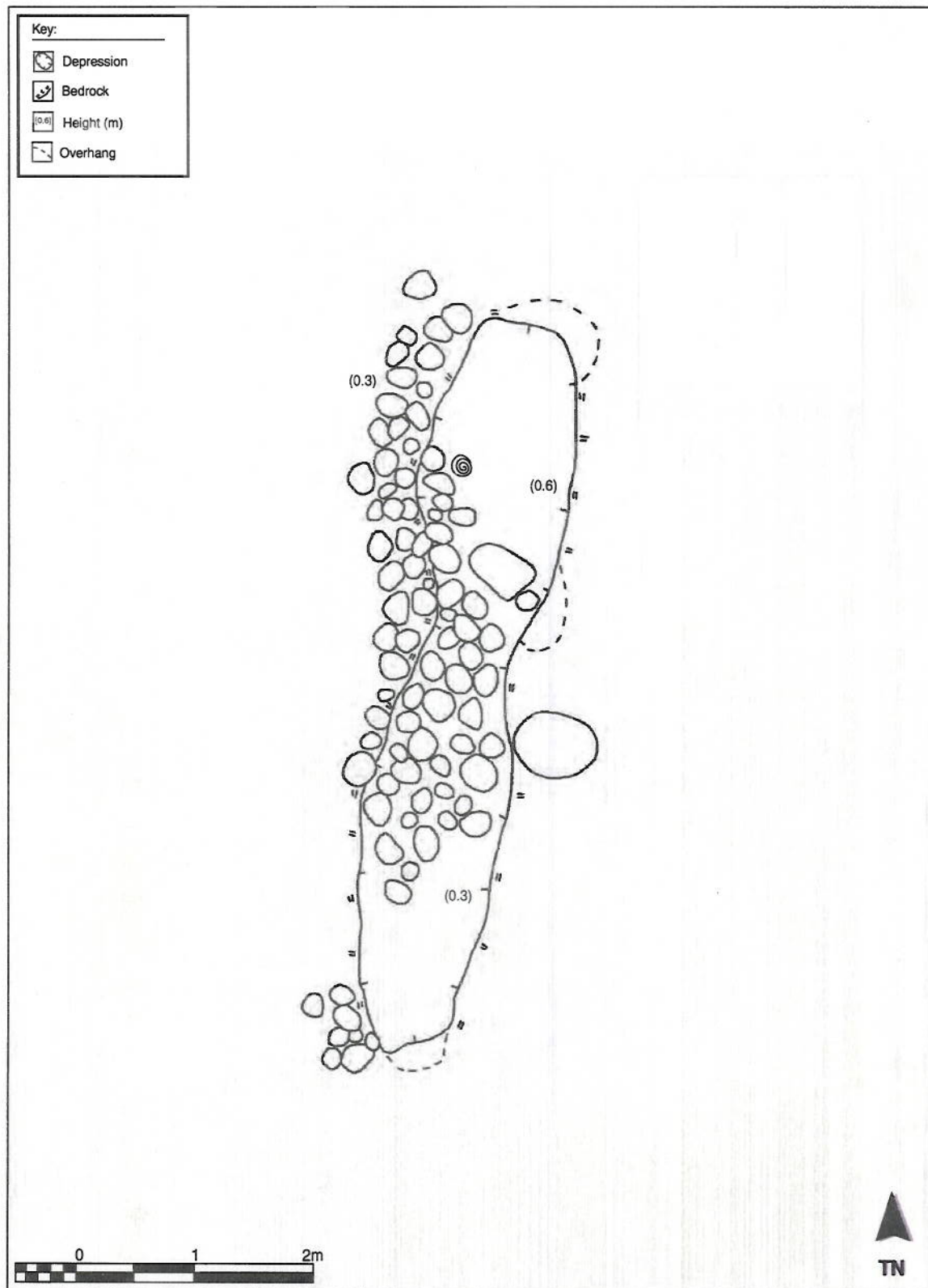


Figure 84. Site 23622 Area B, Plan View.

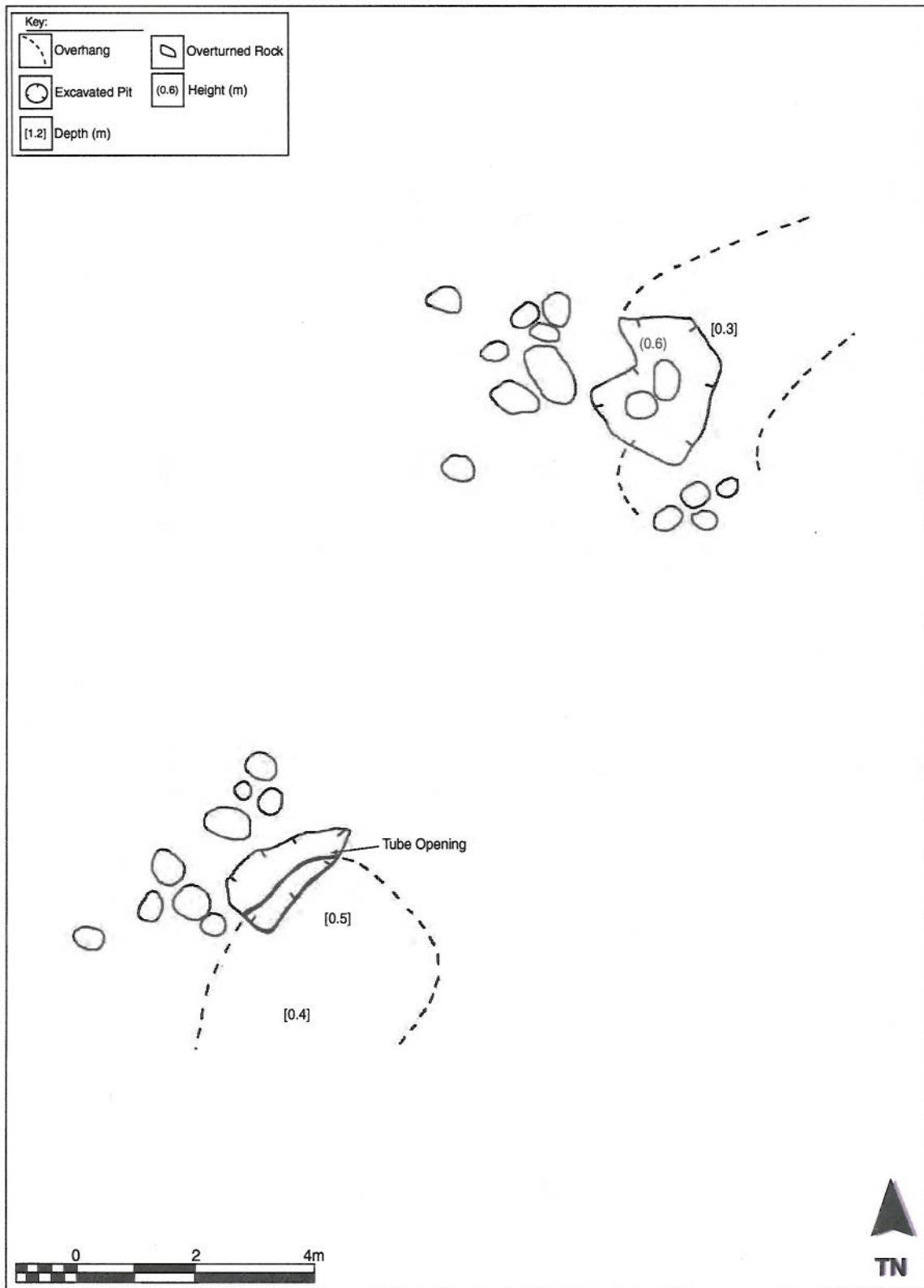


Figure 85. Site 23622, Area C; Plan View

Site 50-10-31-23625		GANDA Site:	903
Site Type:	Lava tube	Training Area:	Impact
Function:	Limited-use Occupation		
Possible age:	Pre-Contact		
No. of Features:	1		
Site Size:	5.0 m by 7.0 m (main chamber) (0.005 hectare)		
Cultural Material:	Hammerstone/bird cooking stone fragment, charred wood		
Condition:	Fair		
Significance:	D: <i>Information potential</i> ; site yields important scientific data regarding Hawaiian occupation and possibly resource exploitation in the Saddle Region.		
Historic Context:	Traditional Hawaiian occupation (ca. AD 780-Contact)		
Recommendation:	Avoidance and protection during all SBCT-related projects.		

Description: Site 23625 is a lava tube located roughly 330 m west of Redleg Trail. The site lies in a weathered *pāhoehoe* flow (kīo flow) formed 5,000 to 10,000 years ago. The lava tube contains four vertical entries or sinks in the ceiling of the tube. A range road passes along the south side of the southern-most entrance of the tube. The cultural component of the lava tube is defined by the presence of a hammerstone and hearth feature (SF-1) in the main chamber described below. The accessible portion of the lava tube is Y-shaped in plan with two tubes (on the northeast and southwest) converging into one tube as it descends the slope northwest (Figure 86).

The main chamber is in the southwest tube section, accessed by the most-southern entrance adjacent to the range road (Figure 87). An ash and charcoal concentration (SF1) is near the northwest wall of the main chamber on the southwest side of a collected hammerstone (Art. 2.1). This chamber is 2.0 m high and 5.0 m by 7.0 m in plan. The chamber entrance has a rocky slope descending 4.0 m to the level soil and outcrop floor of the chamber.

No cultural materials or modifications were observed in the northwestern tube and single tube section descending northwest. The southeast extent of the northern tube was unexplored due to its low (less than 0.5 m high) and narrow passage. The single tube continues roughly 40 m northwest, where it terminates in a small sink; bird skeletons with some feathers intact were observed in this sink.

Site 23625 Testing Results

A test unit (TU1) was excavated in the southern tube's main chamber in proximity to the collected artifact (Art. 2.1) (Figure 88).

TU1 was a 0.5 m by 0.5 m unit placed over the ash and charcoal concentration near the northwest wall of the chamber. The unit was excavated to bedrock, reached at a maximum depth of 4 cmbs. No stratigraphic profile was drawn of the unit because of the shallow depth. SF1 comprised the entire excavation and is described as follows:

SF 1 (4cm thick) dark grayish brown (10 YR 4/2) ash; structureless; loose, non-coherent, non-sticky, non-plastic; few rootlets. Cultural material present.

In addition to the artifact collected from the surface, 2.0 gms of charcoal were collected from the excavation.

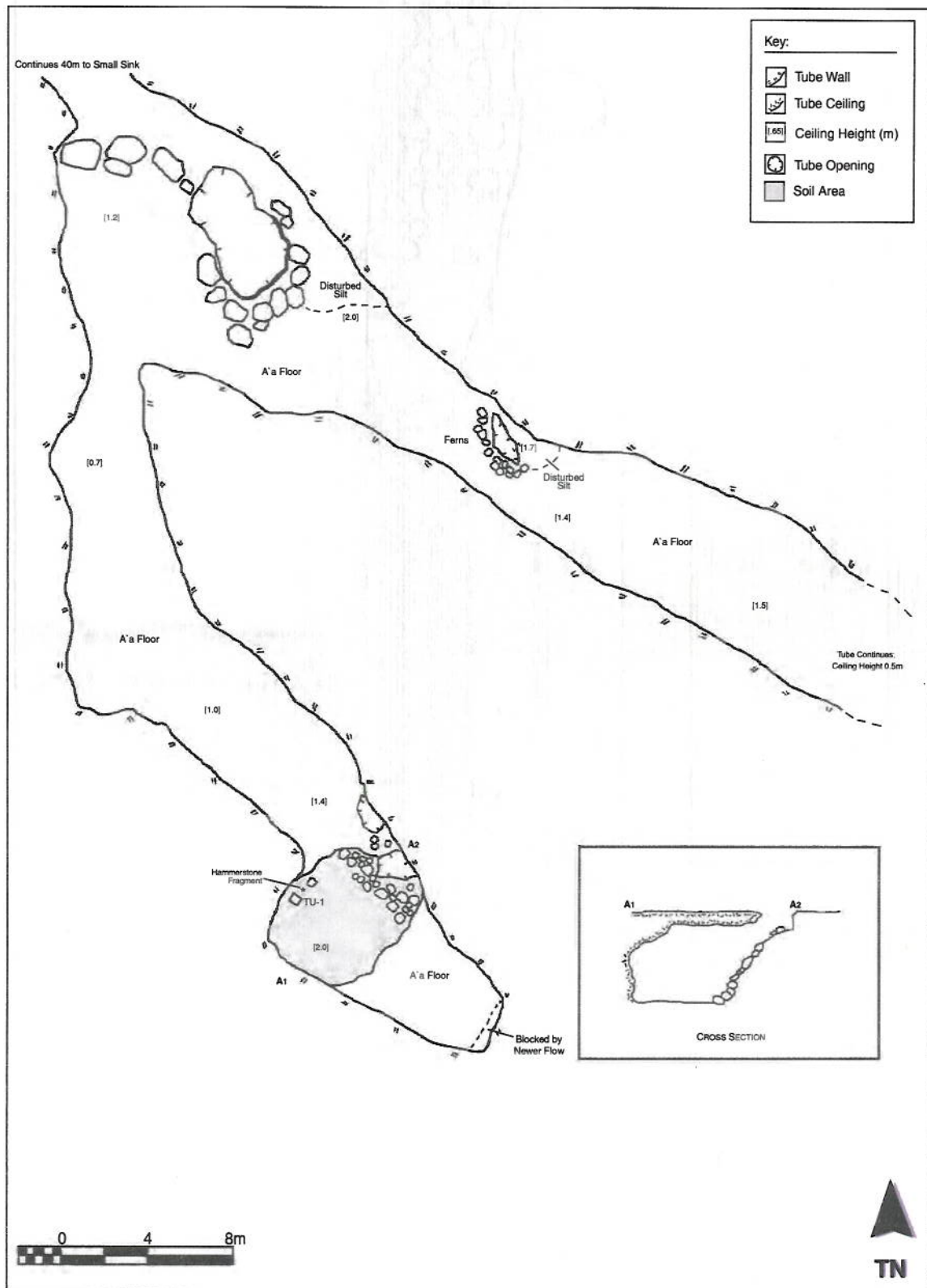


Figure 86. Site 23625; Plan View and Cross-Section



Figure 87. Site 23625, South Entrance to Main Chamber

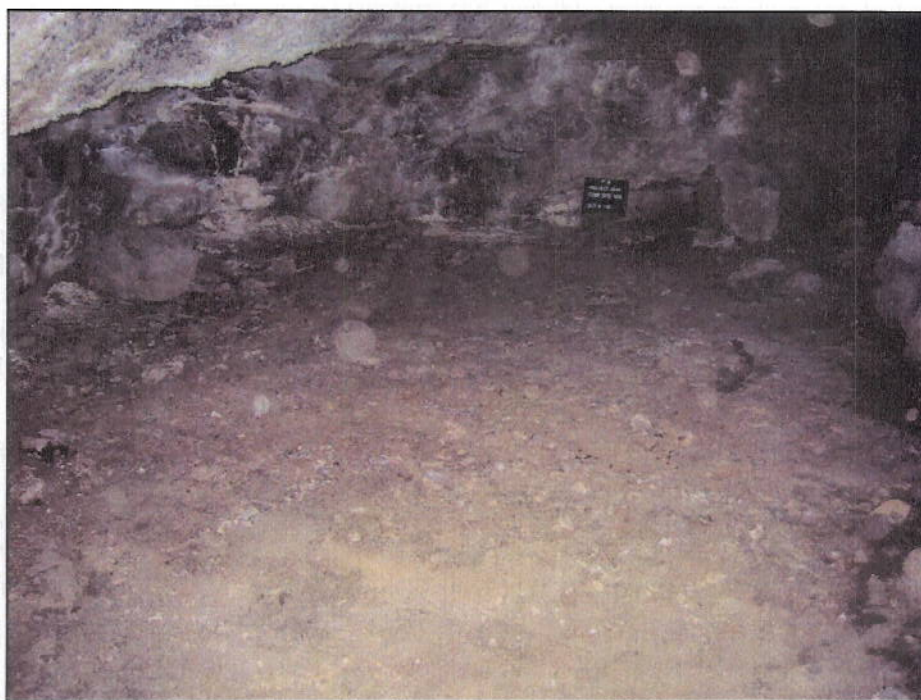


Figure 88. Site 23625 Main Chamber and Location of TU1